Partial Listing

US005646862A

United States Patent [19]

Jolliffe et al.

[11] Patent Number: 5,646,862

[45] Date of Patent: Jul. 8, 1997

[54] **VENDOR-NEUTRAL INTEGRATED VEHICLE ELECTRICAL DESIGN AND ANALYSIS SYSTEM AND METHOD**

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[21] Appl. No.: **315,163**

[22] Filed: **Sep. 29, 1994**

[51] **Int. Cl.**[6] **B60R 16/00**

[52] **U.S. Cl.** **364/488**

[58] **Field of Search** 364/488, 489, 364/490, 491, 578, 200, 401, 518; 395/500

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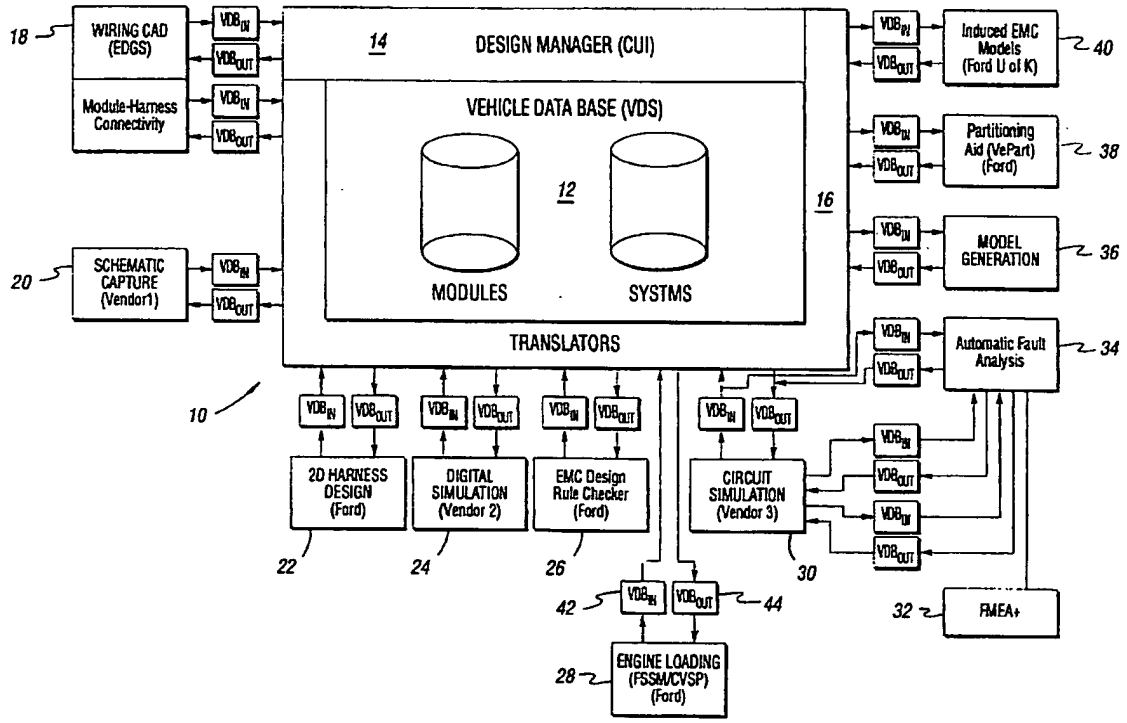
[57] **ABSTRACT**

An integrated Vehicle Electrical Design and analysis System (VEDS) which is adapted to accommodate data interchanged between multiple vendor-independent Computer Aided Engineering (CAE) tools. The system includes a Vehicle Database (VDB) which is operative as a central repository to store all design, analysis and library information. The VDB is interfaced and data is exchanged with the CAE tools through an interface which is predominantly object-oriented using Common Lisp Object System (CLOS). For each tool, an outbound translator is operative to translate the tool's internal data structures into a standard interchange format. Similarly, for each tool, an inbound translator is operative to translate a standard or tool specific interchange format into the tool's internal data structures. The VDB also includes an inbound and an outbound translator. The inbound translator is operative to load data structures from each of the CAE tools into the VDB. The outbound translator is operative to extract selected design data from the VDB and translate it into the standard interchange format or a tool specific interchange format. A Design Manager and an Integration Mechanism are also provided to assist the user in accessing the VDB, launching selected CAE tools, initiating VDB translations, and invoking and controlling data flow to and from selected CAE tools.

4 Claims, 9 Drawing Sheets



US-PAT-NO: **5646862**

DOCUMENT-IDENTIFIER: US 5646862 A

TITLE: Vendor-neutral integrated vehicle electrical design and analysis system and method

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As known to those skilled in the art, and with reference still to FIG. 1 of the drawings, CAE tools 18, 20 and 22 are examples of design tools where the user describes the design in an appropriate level of detail for the part of the process the user is in. Typically, the user describes the most simplified abstract. Thus, the user might first work with tool 20, then elaborate it with tool 22. Thereafter, the user may further elaborate the design with tool 18. There might also be additional tools (not shown) which perform full **3-D** harness design.

As shown, the tool integration window will be displayed and ask the user to provide information such as the vehicle INSTANTs, subsystem name, and if this is "track" only. If the user chooses "track" only, the VDB translator will not be triggered. Only the reference to the **design files** will be stored in the VDB 12. This feature is designed to avoid littering the VDB and improve the performance. If the user chooses "load", the design will be converted into the neutral format (EDIF) and the VDB translator will be invoked to translate the design (in the neutral format) into the VDB 12.